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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769.	Rulemaking 14-08-013 (Filed August 14, 2014)
And Related Matters.	Application No. 15-07-002 Application No. 15-07-003 Application No. 15-07-006
(NOT CONSOLIDATED)	
In the Matter of the Application of PacifiCorp (U901E) Setting Forth its Distribution Resource Plan Pursuant to Public Utilities Code Section 769.	Application 15-07-005 (Filed July 1, 2015)
And Related Matters.	Application No. 15-07-007 Application No. 15-07-008

POST-WORKSHOP COMMENTS OF ENVIRONMENTAL DEFENSE FUND ON TRACK 2 DEMONSTRATION PROJECTS

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POST-WORKSHOP COMMENTS OF ENVIRONMENTAL DEFENSE FUND ON TRACK 2 DEMONSTRATION PROJECTS

I. INTRODUCTION

Pursuant to the ruling issued by Commissioner Picker and Administrative Law Judge (ALJ) Allen on May 17,[1] Environmental Defense Fund (EDF) submits the following post-workshop comments on Track 2 Demonstration Projects. EDF offers overarching comments that apply to all demonstration projects, as well as comments that are more specific to Demonstration Projects C and D. While EDF has a number of suggestions for improving the demonstrations, EDF is in

[1] *Joint Assigned Commissioner and Administrative Law Judge's Ruling Regarding Track 2 Demonstration Projects*, Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769, R. 14-08-013, *et al.* (May 17, 2016).

strong support of the proposals, and we hope they can be implemented in a more timely manner than currently proposed.

II. GENERAL COMMENTS ON DEMONSTRATION PROJECTS

EDF appreciates the efforts taken by the utility Distribution Resource Plan (DRP) teams to describe the proposed Demonstration Projects C, D, and E at the June 28, 2016 workshop, and in response to California Public Utilities Commission (CPUC or Commission) questions.[2] While we have questions pertaining to research design, foundational assumptions and associated hypotheses, the general applicability of the pilots, and the anticipated costs; we see great benefit in taking swift action to complete these demonstrations. None of EDF's questions or comments should, in our opinion, be cause for delay, but rather signal the need for further dialogue and collaboration between stakeholders, the CPUC, and investor-owned utilities (IOUs) as the demonstrations are planned in greater detail.

[2] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals* (Jun. 28, 2016); Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration*, *DRP Demonstration Workshop*: *Demo D -Distribution Operations at DER High Penetration, DRP Demonstration Workshop*: *Demo E - DER Dispatch to Meet Reliability Needs – Microgrid* (Jun. 28, 2016); San Diego Gas & Electric*, Overview of SDG&E's Proposed Project C, Overview of SDG&E's Proposed Project D, Overview of SDG&E's Proposed Project E* (Jun. 28, 2016); *see also Comments of Southern California Edison Company (U 338-E) Proposing Demonstration Projects,* Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769 and Related Matters, R. 14-08-013, *et al.,* (Jun. 17, 2016); *Revised Track 2 Demonstration Project Proposals of Pacific Gas and Electric Company (U 39 E) Pursuant to May 17, 2016, Joint Assigned Commissioner and Administrative Law Judge's Ruling, ,* Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769 and Related Matters, R. 14-08-013, *et al.,* (Jun. 17, 2016); *Response to Track 2 Demonstration Projects Questions of San Diego Gas & Electric Company (U 902-E),* Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769 and Related Matters, R. 14-08-013, *et al.,* (Jun. 17, 2016).

1) Research Design

EDF believes the following should be described with greater specificity:

- Data inputs to be used in evaluating the test hypotheses. For example, in the demonstration of net benefits for Project D, the alternative investments are identified but the costs associated with those alternatives are not yet estimated.
- Analytical methods that will be used and the inherent limitations of those methods with respect to revealing locational benefits (per Demonstration D) or reliability benefits (per Demonstration E).
- Anticipated challenges and changes in circumstance that may cause informational gaps associated with the data and the analytical methods, as well as known planning uncertainties, such as the extent of adoption of time-variant rates and the designs of those rates, that may hinder or facilitate moving from DRP demonstrations to full programs.
- Utility plans for optimizing long-term societal benefits as a result of pilot findings. For example, EDF strongly supports the Southern California Edison (SCE) proposal for Demonstration C to "understand whether [there are] additional opportunities to deploy distributed energy resources (DERs) that can potentially reduce the emissions of criteria pollutants, which in turn might result in benefits to society"[3] but it is unclear what analytical methods will be used. Relatedly, the IOUs should be more explicit about how the unique needs and challenges faced by low-income customers and small businesses, particularly those located in disadvantaged communities, will be incorporated into project design – as it is an implicit principle in Commissioner Picker's DRP guidance.[4]

[3] Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration,* Slide 9 (Jun. 28, 2016).

[4] Commissioner Picker defines "benefits" as either "economic, operational (from the utility perspective) or societal" and states one of the metrics for determining "optimal location" is whether "DER deployment can provide other

2) General Application of Pilot Findings

- It is important to determine *a priori* how utilities will extrapolate the pilot to the entire service area or a larger subsection of the utility territory. While EDF appreciates these are case studies that are not statistically representative samples, some consideration to broader applicability is important at this stage in planning the demonstrations.
- Once the pilots are successful and applied at a broader scale, it is important to understand what changes are forecasted for distributed energy resource (DER) utilization and valuation. In addition, the utilities should detail how the companion Integration Capacity Analyses (ICA) will be updated to reflect changes in DER utilization rates and behaviors and rates of adoption if the pilot learnings are deployed across the service territory.
- The utilities should consider how they can use lessons learned from the pilots in order to support state environmental goals, particularly with respect to criteria air pollutants and greenhouse gas emissions.
- The utilities should detail how they will reflect and incorporate future market conditions, such as DER price trends, regulations, and policy, into the pilots. More specifically, it will be important to see utilities recognize that DER solutions will likely be cost-competitive in the future, and that residential customers will soon pay time-variant electricity prices, with the assistance of the internet of things and smart grid resources. In addition, the utilities should detail how a future landscape, including new pricing structures, will be reflected in locational net benefit analysis (LNBA) demonstrations.

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benefits such as economic, environmental or social equity at a specific location." *Assigned Commissioner's Ruling on Guidance for Public Utilities Code Section 769 – Distribution Resource Planning,* Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resource Plans Pursuant to Public Utilities Code Section 769: Attachment – Guidance for Section 769 – Distribution Resource Planning at A-15 (filed Feb. 6, 2015).

- Finally, EDF asks why the utilities are not considering sourcing strategies beyond formal solicitations. EDF supports including pricing at the "distribution edge" via tariffs and other incentive mechanisms.[5] While EDF is pleased that Pacific Gas & Electric (PG&E) invites third parties to "propose and price various ownership structures" for DERs,[6] EDF questions why additional sourcing strategies – such as relying more on an open marketplace based on appropriate valuation of resources - are not being tested in any of the IOU demonstrations. In addition to demonstrating the efficacy of using DERs to provide valuable grid services, the IOUs ought to be testing efficient means of sourcing innovative DERs, including the reuse of in situ technologies (e.g., smart thermostats, rooftop PV) and latent capabilities (e.g., the thermal storage capacities of buildings). In this respect, providing customers with price signals via time-variant rates and other incentives will create an open market platform for action by customers and their third party providers, and it will allow customers to choose how best to optimize DER for themselves and the grid. Ultimately, this approach has the potential to provide customer-first, efficient DER deployment. This approach will also be more appropriate for utility customers who will have the opportunity to consider a longer list of values than those chosen by the utilities in their demonstrations. For example, customers will see value in DERs for their ability to reduce monthly bills and to invest directly in clean sources of electricity.
- In addition, EDF supports pricing at the distribution edge to source DERs: as it will likely be more efficient and transparent than developing a new request for offer (RFO) process. The IOUs propose to develop new DER solicitation processes that are not necessarily essential to

[5] Rocky Mountain Institute Electricity Innovation Lab, *Rate Design for the Distribution Edge: Electricity Pricing for a Distributed Energy Future* at 6 (Feb. 2014), http://www.rmi.org/elab_rate_design#pricing_paper.
[6] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration C (Demonstrate DER Locational Benefits),* CPUC Workshop Slide 16 (Jun. 28, 2016).

the pilots.[7] They could instead rely on DERs already deployed and the more routine pricing practice of using tariffs, rebates, and incentives to spur customers to invest in DERs.

3) Ongoing Process and Timeline

- It is important to know how the pilots are being developed in ways that (a) are informed by, and, (b) will be used to update the LNBA and ICA. EDF believes the ICA and LNBA ought to be linked dynamically with an iterative sourcing (as per the Integrated Distributed Energy Resource (IDER) proceeding[8]) process in an integrated optimization platform. It is not clear to EDF how the utilities are seeing all of these demonstration pilot processes intersect and what dynamic analytical methods will be used, including rapid updating of data inputs and optimization modelling to balance the needs of customers who invest in DERs and the broader grid.
- EDF encourages broader stakeholder participation on key issues in order to more fully inform IOU process and assist the Commission in guiding the development of a clean and reliable energy system in California. To that end, EDF believes meetings should be held more frequently than quarterly or bi-annually in order to provide timely feedback and course corrections as needed.
- It will be important to determine how existing customer investments in DERs are accounted for, at least at the locational level, and how these resources can be triggered to provide locational benefits as part of the pilots. That is, the utilities should assess to what extent DERs are already in place and may be activated with price signals and other methods. It

[7] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration C (Demonstrate DER Locational Benefits),* Slide 16 (Jun. 28, 2016); San Diego Gas & Electric, *Overview of SDG&E's Proposed Project C,* Slide 7 (Jun. 28, 2016); Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration,* Slide 4 (Jun. 28, 2016).

[8] *Joint Assigned Commissioner and Administrative Law Judge Ruling and Amended Scoping Memo,* Order Instituting Rulemaking to Create a Consistent Regulatory Framework for the Guidance, Planning and Evaluation of Integrated Distributed Energy Resources, R. 14-10-003 at 4 (filed Feb. 26, 2016).

seems likely to EDF that utilization and/or re-use of existing DER assets is likely to be a part of a least cost strategy.

- In order to adequately model the full range of DERs present, and head off potential concerns over utility spending in a way that doesn't maximize customer benefits, a variety of policy, economic, and DER potential scenarios need to be conducted. Looking at a wide variety of scenarios will help ensure that the utilities do not put all of their efforts into an approach that may not be beneficial, but rather have sufficient information to make the best choice from a suite of options.
- Modeling methods and results used by the IOUs need to be more fully described, in order to better understand the results of the various utility analyses and draw strong conclusions for future policies. More specifically, stakeholders should have access to more precise accounting of how the IOUs conducted their respective analyses, such as the underlying assumptions and methods that led to those results or how specific DERs are treated in the analysis. In addition, utilities should allow customers and third parties increased access to data and underlying analytics. Even if it must be compiled into an aggregated format that preserves privacy, such information should be provided both as part of formal solicitations and as part of an effort to better use DERs in situ and to guide the optimal buildout of DERs that are not dedicated parts of a utility solicitation. As EDF has commented in the past, removing data access barriers will facilitate third party participation in energy markets and more widespread use of cost-effective clean energy solutions. The ultimate beneficiaries would be customers who will likely see lower electricity prices, more innovative products and services, more reliable service, and a healthier environment.

- The utilities should provide more details that explain why they decided on the chosen time period and budget in each phase and whether they plan to solicit innovative ideas and products for third party DER providers in order to determine the most appropriate time period and budget. In addition, EDF is particularly concerned that there is a large discrepancy in the cost estimates of pilots between utilities. For instance, PG&E's Demonstration Project C is budgeted to cost over $2 million dollars[9] and take approximately 3.5 years, while SCE's budget is $9 million for the same time period.[10] Accordingly, EDF requests more transparency regarding the rationale behind the pilots' respective budgets.

III. COMMENTS ON DEMONSTRATION PROJECT C – DEMONSTRATION OF DER LOCATIONAL BENEFITS.

A. *General Comments on Demonstration Project C*

- Both PG&E and SCE claimed that their study area for this project is a high opportunity area for DERs due to expected growth in demand.[11] However, they do not provide sufficient details on how they reached this conclusion. It would be helpful for the utilities to identify with more specificity the type of DERs expected in their chosen study areas as a result of market trends.
- Utilities should provide more details on the make-up of the customer base in the pilot area and the expected trend in the future, as well as how they can optimize DER deployment to fit the priorities of DER owners, DER providers, and distribution system needs. For example, do demographic trends indicate that rooftop PV or electric vehicle adoption is anticipated to

[9] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration C (Demonstrate DER Locational Benefits),* Slide 17 (Jun. 28, 2016).
[10] Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration,* Slides 4, 8 (Jun. 28, 2016).
[11] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration C (Demonstrate DER Locational Benefits),* Slide 8 (Jun. 28, 2016); Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration,* Slide 6 (Jun. 28, 2016).

be particularly high in the study area? In raising this request, EDF believes utilities should take into renewed consideration the Commission's emphasis on three parallel goals: "1) to modernize the electric distribution system to accommodate two-way flows of energy and energy services throughout the IOUs' networks; 2) to enable customer choice of new technologies and services that reduce emissions and improve reliability in a cost efficient manner; and 3) to animate opportunities for DERs to realize benefits through the provision of grid services."[12]

- All utilities point to the exploration of specific attributes that they want to explore via their LNBA.[13] However, it is not clear how they intend to assess these attributes. For instance, it is important to be clear about the assumptions behind the value attributes they describe and how these attributes are indicative of future patterns and of customer behavior in other parts of the service territory.
- It would be helpful to know to what extent utilities are planning to integrate third party expert suggestions of enhancements to LNBA model estimates in order to identify and address any gaps between estimated and observed results of the LNBA. More specifically, the CPUC should direct the LNBA working group to critically evaluate the LNBA demonstration results, identify any missing information and gaps between forecasted and actual results, and suggest improvements for the next iteration.

[12] *Assigned Commissioner's Ruling on Guidance for Public Utilities Code Section 769 – Distribution Resource Planning,* Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resource Plans Pursuant to Public Utilities Code Section 769 at 3 (filed Feb. 6, 2015).
[13] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration C (Demonstrate DER Locational Benefits),* CPUC Workshop Slide 17 (Jun. 28, 2016); Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration,* Slides 4, 8 (Jun. 28, 2016); San Diego Gas & Electric*, Overview of SDG&E's Proposed Project C* (Jun. 28, 2016).

- Utilities should identify next steps for DER deployment, along with an explanation of the project's potential for replication across the system. That is, each utility should determine whether their chosen geographic area has characteristics that allow it to be replicated across the distribution system; put differently, if this project is a success, what are the utilities committing now to do in the future, such as updating methods as directed by the ICA working group and expanding the scope and scale from a pilot to a full program offering?

B. *Specific Comments on Utilities' Demonstration Project C*

PG&E

- Among PG&E's three study areas – Chico B, Sycamore Creek, and Esquon - there appears to be a different pattern in distribution capacity need from 2017 to 2021. For instance, in Sycamore Creek, the distribution capacity need will jump from 0.5 megawatts (MW) in 2017 to 4 MW in 2018; after, increases are slight. On the other hand, the distribution capacity need in Chico B rises from 0.2 to 2.2 MW in 2018; after that, the distribution capacity need smooths out without the rise expected in Sycamore Creek.[14] It would be helpful for PG&E to provide an explanation as to why such a large jump is expected in Sycamore Creek, as well as what assumptions and metrics are used to produce these forecasts.

San Diego Gas & Electric (SDG&E)

- In their statistics summary, SDG&E forecasted peak demand only for 2016.[15] It will be important to forecast peak demand not just for the year, but beyond 2016; for example, the California Independent System Operator (CAISO) has forecasted demand beyond 2020.[16]

[14] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration C (Demonstrate DER Locational Benefits),* CPUC Workshop Slides 10, 12 (Jun. 28, 2016).
[15] San Diego Gas & Electric*, Overview of SDG&E's Proposed Project C,* CPUC Workshop Slides 2,3 (Jun. 28, 2016).
[16] California Independent System Operator, *CAISO's proposed TOU periods to address grid needs with high numbers of renewables* (Feb. 26, 2016).

Furthermore, the forecasts ought to consider alternative futures to reflect the different outcomes that can be affected by policy, pricing and practice.

SCE

- SCE has proposed a demonstration within the Preferred Resources Pilot (PRP) study area,[17] a decision that EDF supports, albeit with some reservations, as described below. In the initial PRP, EDF strongly supported greater attention to pricing strategies,[18] particularly in light of what was then a recent move to time-variant tariffs for commercial customers. The new proposal offers another opportunity to make use of commercial and industrial customers' responses to price signals. Similarly, looking forward, EDF would expect SCE to include residential customer load changes as a consequence of a broad transition to time-of-use rates.[19] Failure to plan for customer load shifting– would be leaving a proven, low-cost and potentially significant resource[20] out and thus raise the possibility that the project will be using more expensive solutions than necessary.
- EDF has another concern associated with the selection of the PRP area for this demonstration. To the extent that this pilot will inform the cost-effectiveness of DER options, it is important to be aware that this area may have already become the home to cost-effective DERs, such that additional DERs have become more expensive (i.e., the low-hanging fruit has been harvested already). Therefore, any assessment of the cost-

[17] Southern California Edison, *DRP Demonstration Workshop: Demo C - Locational Net Benefits Analysis- Field Demonstration,* Slide 6 (Jun. 28, 2016).
[18] Oral comments of Environmental Defense Fund on Southern California Edison *Preferred Resources Pilot Webinar* (Jul. 31, 2014).
[19] Decision on Residential Rate Reform for Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company and Transition to Time-of-Use Rates, Order Instituting Rulemaking on the Commission's Own Motion to Conduct a Comprehensive Examination of Investor Owned Electric Utilities' Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations, R. 12-06-013 at 5 (issued Jul. 13, 2015).
[20] Peter Alstone, *et al., 2015 California Demand Response Potential Study – Charting California's Demand Response Future: Interim Report on Phase 1 Results,* Lawrence Berkeley National Laboratory at 9 (Apr. 1, 2016) ("…it is notable that TOU pricing is the most cost-effective option we included in the study, and could contribute substantially to overall DR potential").

effectiveness of DERs sourced in the demonstration ought to be viewed in the context of the prior efforts in the area. On the other hand, as we commented earlier about in situ resources, the demonstration may provide an opportunity to revisit existing DERs to determine how to get additional value from them; that is, this is an opportunity for SCE to minimize ratepayer costs by "reducing and reusing" rather than buying new.

IV. PROJECT D: DEMONSTRATE DISTRIBUTION SYSTEM OPERATION AT HIGH PENETRATION OF DERS

A. *Specific Comments on Utilities' Demonstration Project D*

PG&E

- PG&E proposes to conduct this project in the Huron Substation, located within the Gates DPA.[21] Because the geographic area is rural, it is not clear if the area will reflect customer use of DERs in other areas, or grid conditions elsewhere; in other words, it may not be more broadly applicable. A more detailed explanation should be provided in order to justify the project's potential for replication across the system, most notably in urban areas.
- PG&E analysis shows that during summer the duration and the time of the peak will change over time (over a 2017-2021 span).[22] More details are necessary as to the assumptions and the metrics used to forecast the time and the duration of peaks during this time span. Furthermore, the forecasts ought to consider alternative futures to reflect the different outcomes that can be affected by policy, pricing, and practice.

[21] Pacific Gas and Electric, *PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals – Demonstration D (Demonstrate Distribution Operations at High Penetrations),* CPUC Workshop Slide 5 (Jun. 28, 2016).
[22] *Id.* at Slide 8.

SCE

- The proposed location for this project is the Camden and Johanna Jr. substation areas, which are located in an urban area of Orange County.[23] The area was chosen in part due to the existing and anticipated photovoltaic (PV) installations.[24] However, SCE seems only to focus on the high penetration of solar PV, demand response, and storage.[25] As well, they should be taking other forms of DERs into consideration in order to study distribution operations at high penetrations of DERs – for example, a scenario where EVs, and/or widespread time-of-use (TOU) rates are expected to have high penetration in addition to the aforementioned resources.
- An important additional consideration is whether the geographic area is representative enough to justify the project's potential for replication across the system, and whether the chosen area is indicative of the consumer behavior in other areas.
- SCE claimed they will measure performance of DERs based on operational experience,[26] without further explanation. EDF suggests that they provide clarification on the criteria and attributes they are recommending to measure performance of DERs.

[23] Southern California Edison, *DRP Demonstration Workshop: Demo D – Distribution Operations at DER High Penetration,* Slide 5 (Jun. 28, 2016).
[24] *Id.* at Slide 6.
[25] *Id.*
[26] *Id.* at Slide 4.

V. CONCLUSION

EDF thanks the Commission for the opportunity to provide post-workshop comments and looks forward to continued participation in the DRP proceeding.

Respectfully signed and submitted on July 21, 2016.

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